PATENT ABSTRACTS OF JAPAN

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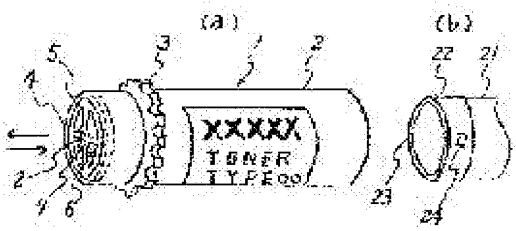
(54) DEVELOPER CONTAINER, PROCESSING CARTRIDGE, JUDGEMENT DEVICE FOR RECYCLING OF SUCH CONTAINER OR CARTRIDGE AND IMAGE FORMING DEVICE



(57)Abstract:
PURPOSE: To prevent the use of an imitation toner cartridge in a copying machine.
CONSTITUTION: A storing means provided with ROM and a terminal for electrical connection, for example, is provided to one part of the toner cartridge 1 and code data guaranteeing the quantity of the toner, for example the code data of the manufacturing firm of the toner, is stored to the storing means. Then, a reading means reading the data of the storing means through the terminal for connection and an action inhibiting control means inhibiting copying when the code data which was fixed beforehand is not read are provided on the copying machine main body side.

CLAIMS

[Claim(s)]
[Claim 1]In a developer receiving vessel removable to an image forming device which visible-image-izes a latent image using a developer, A developer receiving vessel establishing a memory measure provided with a contact button connectable with a reading means provided in a main part of this image forming device when it has coded data which guarantees quality of a developer accommodated in this container and an image forming device is equipped with this container.
[Claim 2]A developer receiving vessel of claim 1, wherein the above-mentioned data is a regular manufacture manufacturer code of the above-mentioned developer.
[Claim 3]A developer receiving vessel of claim 1, wherein the above-mentioned memory measure has data in which the characteristic of the above-mentioned developer is shown further.
[Claim 4]A developer receiving vessel of claim 1, wherein the above-mentioned memory measure has a storage parts store of reutilization frequency of the above-mentioned container.
[Claim 5]An image forming device which supplies a developer to a developer which equips with a developer receiving vessel and visible-image-izes a latent image, comprising:
When it has coded data which guarantees quality of a developer accommodated in this container and an image forming device is equipped with this container, this container, A data read means which it has the memory measure provided with a contact button connectable with a reading means provided in a main part of this image forming device, and this main part is connected to this contact button, and reads data of this memory measure.
An internal memory which memorizes message information corresponding to this coded data.
A displaying means which displays this message.
An operation prohibition control means to forbid an operation of this main part when data of this memory measure is not able to be read by this data read means.

[Claim 6]An image forming device of claim 5, wherein the above-mentioned memory measure has data in which the characteristic of the above-mentioned developer is shown further and the above-mentioned main part has a conditioning means to control to change an image formation condition based on this data read by the above-mentioned data read means.
[Claim 7]An image forming device of claim 5, wherein the above-mentioned memory measure has a storage parts store of reutilization frequency of the above-mentioned container and the above-mentioned main part has a data writing means which updates reutilization frequency data of this storage parts store in connection with being equipped with this container.
[Claim 8]An image forming device of claim 5 characterized by comprising the following.
A program reading means in which the above-mentioned memory measure has a control program further for the above-mentioned main parts, and the above-mentioned main part reads this control program.
A program replacement means which transposes a control program in an internal memory to this control program read by this program reading means.

[Claim 9]A reuse determining device of a developer receiving vessel characterized by comprising the following.
A data read means which reads data of reutilization frequency of this container memorized by memory measure provided in a collected developer receiving vessel.

A decision means reutilization frequency of this container judges it to be whether it is predetermined within the limits based on data read by this data read means.

[Claim 10]A memory measure of claims 1 thru/or 9 replaces with the above-mentioned developer receiving vessel, and An electrification unit, It has at least one and latent image support of devices for image formation, such as a developer and a cleaning device, It is provided in a process cartridge constituted by image forming device body removable, And a process cartridge, an image forming device, or a reuse determining device of a process cartridge which replaces with quality of the above-mentioned developer and is characterized by having coded data which guarantees quality of this process cartridge.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application]This invention relates to image forming devices, such as a copying machine, a facsimile, and a printer, and relates to a guarantee of quality of the developer receiving vessel and process cartridge which can be desorbed, management of reutilization frequency, etc. to an image forming device body in detail.
[0002]
[Description of the Prior Art]In the electro photography copying machine etc. which have a developer which visible-image-izes an electrostatic latent image using a toner, since the toner in a developer is consumed in connection with image formation, it is necessary to supply a toner into a developer from the exterior. The seal which equipped with the toner cartridge in the machine body, and had taken up the toner injection hole of the toner cartridge as a replenishing method of this toner is removed, The method of supplying all the accommodation toners at a once term, the method of rotating a toner cartridge, for example and supplying the specified quantity in a developer from a toner injection hole at every necessity, etc. are known variously. As a toner cartridge suitable for especially the former toner supplying method, the thing of the core box currently indicated [JP,61-117170,U / publication of unexamined utility model application Showa 59-41365, publication of unexamined utility model application Showa 64-59265,] is used, for example. The cylindrical thing which equipped with drive gearing the peripheral surface currently indicated by JP,59-188678,A, JP,60-146265,A, etc. as a toner cartridge suitable for especially the latter toner supplying method, for example is used. Various kinds of toner cartridges are proposed besides these.
[0003]And the toner cartridge itself [such] is carrying out specific shape decided by main part side structures, such as a copying machine, etc.
Unless it is a cartridge of this specific shape, a main part cannot be equipped correctly.
It is certainly equipped with the toner cartridge in which this accommodated the predetermined toner since the character of the toner used by a photo conductor and the development process in imaging processes, such as a copying machine, was defined severely. And using a predetermined toner in this way is also a precondition for the manufacturer and vender of a copying machine to guarantee copy quality over a long period of time.
[0004]In what in which uses two or more toner cartridges of identical shape which accommodated the toner with which colors differed, respectively for a copier body equipping with them that it is simultaneous or selectively. In order to prevent incorrect wearing of a toner cartridge, to each toner cartridge. The informing means which reports a detection means to provide the discernment member from which a formation position and shape differ mutually, and to detect this discernment member to a copying machine, and the detecting content by this detection means is established, It is also proposed that display the toner color in the toner cartridge with which it was equipped by this informing means, or an alarm sound reports incorrect wearing (for example, refer to JP,61-41159,A and JP,61-292168,A).
[0005]As image forming devices, such as an electro photography copying machine, It has at least one of the devices for image formation, such as an electrification unit, a developer, and a cleaning device, or at least one of the devices for image formation, and latent image support, and the thing using the process cartridge constituted by the image forming device body removable is known. And in order to adjust automatically the image formation condition related to that process cartridge at the time of exchange of

this process cartridge, Providing the memory measure which consists of ROMs for example, it memorized the data for adjustment in the process cartridge itself is also proposed (for example, JP,3-289672,A).
[0006]
[Problem(s) to be Solved by the Invention]By the way, the shape of a pure toner cartridge may be copied and the non-genuine toner cartridge (henceforth an imitation toner cartridge) which accommodated the toner manufactured uniquely may appear on the market in a commercial scene. For a user, generally, as compared with a pure thing, since the price is cheap, an imitation toner cartridge may be purchased by the user of a copying machine, and a thing difficult [judgment whether such a toner cartridge is pure] and non-genuine may be used. Although the toner of such an imitation toner cartridge does not change copy quality a lot temporarily, it worsens copy quality with time. For this reason, to the vender of a user to a copying machine, copy quality is bad, and a claim is brought near by this noting that machinery is the cause. The vender who received the claim will perform treatment for cause investigation of copy quality deterioration, or copy quality restoration. . Thus, the cause of copy quality deterioration is not a pure toner specified by the manufacturer of the copying machine. Also when it is in having used the toner from an imitation toner cartridge, the actual condition is that the vender of a copying machine, etc. have paid all the expenses for those who manufactured and sold the imitation toner cartridge usually not doing any compensation, either, but restoring this. Therefore, when the copy quality deterioration of a cause happens frequently in such an imitation cartridge, there is a possibility that manufacturing and selling of a copying machine may stop materializing as an enterprise, and a manufacturer's trust may be remarkably lost from the field of quality. For this reason, the immediate measure against an imitation cartridge is needed.
[0007]The following measures can be considered as such a measure against an imitation cartridge, and although proposed, it is accompanied by a fault, respectively.
(1) Change the shape of a toner cartridge for every kind of copying machine. A manufacturing cost increases and this leads to the rise of a user's purchase price. And legal restrictions cannot be exerted on an imitation contractor at all.
(2) Make shape of a toner cartridge into the special shape which can be protected with a patent right or a design right. Before formation of a patent right or a design right, this cannot do legal restrictions effective in an imitation contractor so that a product life may be exhausted in many cases.
(3) Acquire a trademark right about the product name of the toner accommodated in a toner cartridge, or the copying machine to be used, check the display of the toner kind in imitation toner cartridge, or an application kind name, and make sale of an imitation toner cartridge difficult. The effect of a trademark right does not reach and this is not thoroughgoing, when an imitator displays a toner kind and an application kind name by the method ordinarily used as a display of quality or a use.
(4) While attaching to a part of toner cartridge special marks, such as a bar code which can identify a manufacturer's logo and toner quality, The toner cartridge which forms a means to detect this mark etc. in a copying machine and to which the predetermined mark is not attached to it is prevented from being equipped (for example, refer to JP,63-82491,A, JP,63-82493,A, and JP,62-173482,A). Since this can create the same mark easily and can attach it to a toner cartridge when an imitation contractor discovers such a special mark, it is insufficient as a measure.
[0008]The necessity for reuse of copying machine parts increases from effective use of resources, or a viewpoint of environmental protection, and it considers also reusing a toner cartridge as much as possible these days. A toner cartridge collects from a user the containers of the toner cartridge which became empty, is re-filling up a toner into this with a factory, and can reuse them. However, since there is a life also in a container, if it reuses exceeding this, fault will be produced at the time of the use with which a copying machine is equipped, etc. For this reason, the method of distinguishing easily is called [whether it is recyclable from the shape of a container, etc., and] for.
[0009]A copying machine has many kinds and there are monochrome copying machine, 2 color color copying machine, a full color copying machine, a copying machine in which color substitution is possible in one color, etc. Among these, several toner cartridges from which an accommodation toner color differs mutually, for example like 2 color color copying machine or a full color copying machine, It is necessary to prevent that a toner cartridge makes the place which was mistaken in that with which the predetermined place in the copying machine set up beforehand is equipped about each equip. As a

prevention method of incorrect wearing of such a toner cartridge, Only displaying a wearing place and a wearing cartridge on a user by attaching a predetermined label near the wearing place of the toner cartridge surface or a main part besides the method of the indication to above-mentioned JP,61-41159,A, JP,61-292168,A, etc. is considered. Since the container of a toner cartridge and the inner structure of a main part applied part can be communalized in each color according to these, the rise of the manufacturing cost of a toner cartridge or a copier body can be suppressed to the minimum. However, there is a possibility that incorrect wearing by a user's misconception cannot be prevented, only by the display and information to such a user.

[0010]This invention is made in view of the above problem, it is an image forming device and the 1st purpose is to provide the developer receiving vessel which enables it to use only a pure developer receiving vessel appropriately. The 2nd purpose is to provide the developer receiving vessel in which a ** exception is possible for a pure thing. The 3rd purpose is to provide the image forming device as for which a ** exception can do a pure developer receiving vessel. The 4th purpose is to provide the developer receiving vessel which could be made to perform the judgment of whether for the reutilization frequency of a developer receiving vessel to be recorded and to reuse at the time of the recovery. The 5th purpose is to provide the reuse determining device of the developer receiving vessel which can judge whether it is reused or not at the time of recovery of a developer receiving vessel. The 6th purpose is to provide the image forming device which can change an image formation condition according to the characteristic of the developer in a developer receiving vessel. The 7th purpose is to provide the process cartridge, the image forming device, or the reuse determining device of a process cartridge which can perform the same thing about a process cartridge also in the above 1st thru/or the 7th purpose.

[0011]

[Means for Solving the Problem]In a developer receiving vessel removable to an image forming device with which an invention of claim 1 visible-image-izes a latent image using a developer, When it had coded data which guarantees quality of a developer accommodated in this container and an image forming device was equipped with this container, a memory measure provided with a contact button connectable with a reading means provided in a main part of this image forming device was established.

[0012]An invention of claim 2 is characterized by the above-mentioned data being a regular manufacture manufacturer code of the above-mentioned developer in a developer receiving vessel of claim 1.

[0013]An invention of claim 3 has data which the above-mentioned memory measure shows the characteristic of the above-mentioned developer further in a developer receiving vessel of claim 1.

[0014]In an invention of claim 4, in a developer receiving vessel of claim 1, the above-mentioned memory measure has a storage parts store of reutilization frequency of the above-mentioned container.

[0015]An invention of claim 5 equips with a developer receiving vessel, and this invention is characterized by that an image forming device which supplies a developer to a developer which visible-image-izes a latent image comprises the following.

When it has coded data which guarantees quality of a developer accommodated in this container and an image forming device is equipped with this container, this container, A data read means which it has the memory measure provided with a contact button connectable with a reading means provided in a main part of this image forming device, and this main part is connected to this contact button, and reads data of this memory measure.

An internal memory which memorizes message information corresponding to this coded data.

A displaying means which displays this message.

An operation prohibition control means to forbid an operation of this main part when data of this memory measure is not able to be read by this data read means.

[0016]In an image forming device of claim 5, an invention of claim 6 the above-mentioned memory measure, It has data in which the characteristic of the above-mentioned developer is shown, and has a conditioning means which the above-mentioned main part controls to change an image formation condition based on this data read by the above-mentioned data read means.

[0017]In an image forming device of claim 5, the above-mentioned memory measure has a storage parts store of reutilization frequency of the above-mentioned container, and an invention of claim 7 has a data writing means in which the above-mentioned main part updates reutilization frequency data of this storage parts store in connection with being equipped with this container.

[0018]An invention of claim 8 is [this invention] characterized by that an image forming device of claim 5 comprises the following.
A program reading means in which the above-mentioned memory measure has a control program further for the above-mentioned main parts, and the above-mentioned main part reads this control program.
A program replacement means which transposes a control program in an internal memory to this control program read by this program reading means.

[0019]An invention of claim 9 is [this invention] characterized by that a reuse determining device of a developer receiving vessel comprises the following.
A data read means which reads data of reutilization frequency of this container memorized by memory measure provided in a collected developer receiving vessel.
A decision means reutilization frequency of this container judges it to be whether it is predetermined within the limits based on data read by this data read means.

[0020]An invention of claim 10 A process cartridge, an image forming device, Or in a reuse determining device of a process cartridge a memory measure of claims 1 thru/or 9, Replace with the above-mentioned developer receiving vessel, and it has at least one and latent image support of devices for image formation, such as an electrification unit, a developer, and a cleaning device, It is provided in a process cartridge constituted by image forming device body removable, and replaces with quality of the above-mentioned developer, and has coded data which guarantees quality of this process cartridge.
[0021]
[Function]In the invention of claim 1, when an image forming device is equipped with a developer receiving vessel, The contact button of the memory measure provided in this is connected to the reading means provided in the main part of this image forming device, and reading of the coded data which guarantees by this the quality of the developer which this memory measure has is made possible by the main part side of this image forming device.
[0022]The 3rd person is prevented from getting to know the above-mentioned data easily by this in the developer receiving vessel of claim 1 in the invention of claim 2, using the regular manufacture manufacturer code of the above-mentioned developer as the above-mentioned data.
[0023]In the invention of claim 3, in the developer receiving vessel of claim 1, the data which shows the characteristic of the above-mentioned developer to the above-mentioned memory measure is given, and change of the image formation condition according to this characteristic is enabled by the main part side of an image forming device using this data.
[0024]The storage parts store of the reutilization frequency of this container is provided in the above-mentioned memory measure, and it enables it to record reutilization frequency on it in the developer receiving vessel of claim 1 in the invention of claim 4 at this storage parts store.
[0025]In the invention of claim 5, when an image forming device is equipped with a developer receiving vessel, the contact button of the memory measure provided in this is connected to the data read means provided in the main part of this image forming device. When the coded data which guarantees the quality of the developer which this memory measure has by this data read means means is able to be read, based on the message information corresponding to this coded data memorized by the internal memory, a message is displayed on a displaying means. On the contrary, when this coded data is not read, the operation of a main part is forbidden by an operation prohibition control means.
[0026]By the main part side which also gave the data in which the characteristic of the above-mentioned developer is shown in the image forming device of claim 5 in the invention of claim 6 in addition to the coded data which guarantees the quality of a developer to the above-mentioned memory measure, and read this data. It controls by a conditioning means to change an image formation condition based on this data.
[0027]In the invention of claim 7, the reutilization frequency data of this storage parts store is updated by the data writing means by the side of a main part in the image forming device of claim 5 in connection with providing the storage parts store of the reutilization frequency of this container in the above-mentioned memory measure, and being equipped with this container.
[0028]In the invention of claim 8, in the image forming device of claim 5, to the above-mentioned memory measure. It transposes to the control program which gave the control program for main parts,

read this control program by the program reading means by the side of a main part, and read the control program in the internal memory by the side of a main part by the program replacement means.
[0029]In the invention of claim 9, the data of the reutilization frequency of this container memorized by the memory measure provided in the collected developer receiving vessel is read by a data read means, and the reutilization frequency of this container judges whether it is predetermined within the limits by ****** and ********** to the read data.
[0030]In the invention of claim 10, it performs about a process cartridge that it is the same as that of the invention of claims 1 thru/or 9.
[0031]
[Example]One example which applied this invention to the electro photography copying machine (henceforth a copying machine) which is an image forming device hereafter is described. This example provides a memory measure in the toner cartridge as a developer receiving vessel. Drawing 1 (a) is a perspective view of the toner cartridge concerning an example. As for the toner cartridge 1 of this example, the toner is stored in the package body 2 of a cylindrical shape. The gear 3 of two package body diversion is formed in the peripheral part of this container. The gear 3 may be formed in one with the package body 2, and may fix the thing of a different body to a container periphery. The one end of the package body 2 is opened wide, and forms the outlet 4 of a toner. The mouthpiece 5 is attached to the outlet 4. This mouthpiece 5 has the four openings 6, and the central part 7 is equipped with the memory measure 8. It was constituted [whose memory measure 8 was] like ROM, and is provided with the terminal for the electrical connection by the side of a copier body. The mouthpiece 5 is attached to the wall of the package body 2, enabling free rotation. At the time of conveyance, this toner cartridge 1 covers mouthpiece 5 portion with the cap which is not illustrated, and the toner is kept from leaking. And in equipping the copier body which is not illustrated, it sets, removing the above-mentioned cap and raising it to the cartridge holder of the copier body which is not illustrated, where the toner cartridge 1 is vertically stood so that mouthpiece 5 portion may turn up. The arrow in a figure shows the field cartridge 1 move direction at the time of desorption. You make a cartridge holder rock so that the toner cartridge 1 may become a level posture after toner cartridge 1 attaching to this cartridge holder, and a toner makes it make it emit from the above-mentioned opening 6. As composition of such a cartridge holder etc., the composition of an indication is employable as JP,59-188678,A, for example.
[0031]If a main part is equipped with the toner cartridge 1, the mouthpiece 5 will engage with the data reader formed in the main part side electrically. The gear 3 also engages with the driving gear (not shown) by the side of a main part, and is rotated. If the package body 2 rotates, the toner in a container will be moved to a left, a toner will be discharged from the outlet 4, and a toner will be supplied to a developer inside the plane. Even if the package body 2 rotates, since it has combined with the data reader by the side of a main part, the mouthpiece 5 does not rotate.
[0032]Drawing 1 (b) shows the modification of the above-mentioned toner cartridge 1. In the toner cartridge of this example, an about four toner outlet [of the package body 21] periphery is equipped with the cap 22 to the package body 21, enabling free rotation. When a main part is equipped, this cap 21 engages with the reader by the side of a main part electrically physically. Therefore, although fixed, the package body 21 rotates the cap 21. The memory measure 23 is attached to the tip part of this cap 22. It may replace with this and the memory measure 24 may be attached to the peripheral part of the cap 22.
[0033]Drawing 2 is a perspective view of the toner cartridge 31 concerning other examples. The toner cartridge 31 of this example is a thing of common knowledge of a core box, and the method of figure Nakashita carries out the opening of it, and it is sealed with the seal after toner restoration. And it inserts towards [as an arrow shows to the copier body which is not illustrated], and equips on the hopper area of a developer, the above-mentioned seal is removed, and a toner is supplied in a hopper. This kind of toner cartridge 1 is also a thing of common knowledge by publication of unexamined utility model application Showa 59-41365, publication of unexamined utility model application Showa 64-59265, JP,61-117170,U, etc. And the memory measure 33 is attached to mounting direction tip side 32 of this toner cartridge 31 in this example.
[0034]A following program and data are memorized in the above-mentioned memory measures 8, 23, 24, and 33 (henceforth the memory measure 8). This program has a program ordered to read the data memorized by ROM of the memory measure 8 to a device main frame in a copier body. A code like the company name of the manufacturer of a toner is written to the beginning or the position of a program.

The coded data of this company name is used for enabling the operation of a copying machine, only when it is read by the control device of a copier body so that it may mention later, and existence of that name is checked. This is a measure for preventing bringing unexpected damage to a copying machine using the toner which the 3rd person other than a maker made. moreover -- there is change of a formula of a toner, etc. -- various kinds of imaging conditions (electrification conditions.) of a copier body The program which changes the imaging program which it has in machinery beforehand, and the imaging program for rewriting may be made to memorize to make an exposing condition, developing conditions (bias, toner density, etc.), a transfer condition, etc. into the thing suitable for the toner.

[0035]The data in which the kind and the characteristic of the toner stored in the toner cartridge 1 are shown as the above-mentioned data is recorded. The kind (this is also a kind of the characteristic) of toner is a kind of the color of a two-ingredient developer and a toner, i.e., black toner, red toner, etc. which a developer becomes from the toner of one ingredient, and a career and a toner. If this data is made to memorize, in the case of the color copying machine which must equip the place corresponding to the developer of the right color with a toner cartridge, for example, the data from the memory measure 8 will be read, Also when an operator incorrect-equips temporarily, he can tell a fault a priori by display etc., and that can be made to notice. The characteristic of a toner is data etc. in which the weighted solidity at the time of manufacture of a toner is shown. If it is the conditions which participate in the influence which it has on the picture creation at that time even if manufacturing conditions differ somewhat, it will be written in data. If this data is made to memorize, it can control to read the data from the memory measure 8, for example, to amend the imaging conditions of a copying machine, and it will become possible to acquire the picture which chose and was excellent.

[0036]In order to manage the reutilization frequency of the toner cartridge 1, the storage area of a use count may be established in ROM41 of a memory measure. Reusing a toner cartridge these days came to be recommended as part of environmental protection. However, there is a limit also in carrying out repeated use. For example, in the case of a toner cartridge like drawing 1 (a), since the gear 3 may be worn out, a limit is needed. Then, the memory measure of the toner cartridge 1 is made to memorize the use count, and this is used for it at management of the reutilization frequency of the toner cartridge 1. When making this data memorize, for example the toner cartridges 1 are collected and it is returned in a factory, the use count of that sum total can be known by reading the information on ROM41 of the cartridge 1. If it is a thing beyond a limit, reuse is stopped, and it can use as a toner is filled up with and reused, if it is in a limit.

[0037]Drawing 4 is a block diagram of the control circuit in a copying machine. Data reading and the write control circuit 42, the internal memory 43, the display control circuit 44, the display 45, the copy control circuit 46, the copy condition setting-out means 47, etc. are formed in the copier body. Above-mentioned data reading and write control circuit 42 are connected to ROM41 of a toner cartridge via the connector which is not illustrated, the terminal of a memory measure, etc., the program in this ROM41 is read, and those contents of a program are performed. The program etc. which control an enterprise code, for example, above-mentioned data and copy control corresponding to a message "GENUINE RICOH TONER CARTRIDGE IS INSTALLED." corresponding to "RICOH", are memorized by the above-mentioned internal memory 43. The display 45 (plotting board 34) controls the above-mentioned display control circuit 44. The copy control circuit 46 controls the copy condition setting-out means 47 to change developing bias voltage, when the conditions of a toner differ.

[0038]Drawing 5 shows an example of the control performed by ****** data reading and the write control circuit 42 by the program currently recorded in ROM41 of the toner cartridge 1. First, the program and data of memory storage ROM41 which were attached to the toner cartridge are read by reading and the writing control circuit 42. An enterprise code like a manufacturer's company name is written to the predetermined part of the program in the above-mentioned ROM41, and if data reading and the write control circuit 42 read this code, the predetermined data table of the internal memory 43 will be searched (Step 1). In being the read enterprise code, for example, the code in which "RICOH" is beforehand set as this data table, here, The message data corresponding to this code, For example, as shown in drawing 3, the data corresponding to the message "GENUINE RICOH TONER CARTRIDGE IS INSTALLED." (equipped with the intrinsic toner cartridge of Ricoh.) is read from the internal memory 43, The message is displayed on the display 45 via the display control circuit 44 (Step 2). Subsequently, the data about the toner currently recorded in the above-mentioned ROM41 is read, and toner data is displayed on the

display 45 via the display control circuit 44 (Step 3). Subsequently, the data about the use count of the past of the toner cartridge 1 currently recorded in the above-mentioned ROM41 is read, and the number of times is displayed on the display 45 via the display control circuit 44 (Step 4). Subsequently, alteration data is searched about the imaging program in the above-mentioned ROM41 currently recorded when there is change of a formula of a toner, etc., The existence data currently recorded on this alteration data is read, and, in with change, the imaging program which controls the copy control in the above-mentioned memory 43 is rewritten by reading and the writing control circuit 42 according to the program which changes an imaging program (Step 5). It is made for the copy control circuit 46 to have the copy condition setting-out means 47 controlled by this to change developing bias voltage, when the conditions of a toner differ. Subsequently, it changes into a copy execution (copy is possible) state (Step 6), and a return is carried out.

[0039]Since reading and the writing control circuit 42, on the other hand, do not read a specific enterprise code or decryption code when equipped with what is not a regular toner cartridge, it turns out that there is no code registered even if updated with the internal memory 43 (Step 1). In such a case, make the copy control circuit 46 unable to perform prohibition on a copy, or copy execution, and. By the display control circuit 44, the message of "having been equipped with the cartridge which is not suitable" is displayed on the display circuit 45, it changes into a copy prohibition (copy is impossible) state (Steps 7 and 8), and a return is carried out.

[0040]Only when an operator carries out fixed key operation at a suitable stage, it may be made to display on the plotting board 34 in the above example of control, although the use count of a toner kind or the toner cartridge 1 is displayed uniformly.

[0041]Drawing 6 (a) shows an example of the control which writes one use count in ROM41 by reading and the writing control circuit 42, when a copier body is equipped with the toner cartridge 1 and a toner is altogether supplied to the inside of a plane for use count management of the above-mentioned toner cartridge 1. Distinction of toner replenishment completion of Step 1 can be performed using the toner end detection signal in the toner end detection in the well-known toner cartridge 1, if it is in the thing which performs toner replenishment little by little according to a toner density detection result after equipping a copying machine as shown in drawing 1. As shown in drawing 2, after equipping a copying machine, by what supplies all the toners at once, seal ** can carry out, for example and it can carry out using the signal of detection, the toner density rise detection after wearing, etc.

[0042]Drawing 6 (b) shows an example of control which judges whether the information on ROM41 of the cartridge 1 is read and reused, when the toner cartridges 1 are collected and it is returned in a factory. This is performed by the control section of the reuse determining device which is not illustrated.

Of course, this reuse determining device is provided with the connector etc. which are connected to the terminal of the memory measure 8 of the toner cartridge 1.

In this example, when smaller than the recyclable number of times N, the use count n read in ROM41 outputs a recyclable signal, and, in other than this, outputs a reuse improper signal. These signals may be used for displaying the message corresponding to each signal on the displaying means attached to the determining device, and may be used as a control signal for the toner filling devices of the toner cartridge 1.

[0043]

[Effect of the Invention]In the invention of claim 1, when an image forming device is equipped with a developer receiving vessel, The contact button of the memory measure provided in this is connected to the reading means provided in the main part of this image forming device, and reading becomes possible by the main part side of this image forming device about the coded data which guarantees by this the quality of the developer which this memory measure has.

Therefore, by making information peculiar to a developer receiving vessel into coded data, use of the right developer receiving vessel in an image forming device can be guaranteed, and stabilization of imaging quality can be attained.

Since data is electronically memorized within the memory measure, for example, it can be made difficult that the contractor who is not regular reproduces the memory measure itself which has prescribed data. Therefore, also when prepare a regular developer receiving vessel and a developer receiving vessel with same appearance, such as shape and a display, and an imitation contractor makes the developer manufactured uniquely accommodate and circulates a commercial scene, such a developer receiving

vessel is discovered easily and the use in an image forming device can be prevented.
[0044]The 3rd person is prevented from the above-mentioned data getting to know easily by this as the above-mentioned data in the developer receiving vessel of claim 1 in the invention of claim 2 using the regular manufacture manufacturer code which only the regular manufacture maker of the above-mentioned developer knows.
Therefore, the use in the image forming device of an imitation developer receiving vessel can be prevented still more effectively.

[0045]In the invention of claim 3, change of the image formation condition according to this characteristic which gave the data which shows the characteristic of the above-mentioned developer to the above-mentioned memory measure, and used this data by the main part side of an image forming device is enabled in the developer receiving vessel of claim 1.
Therefore, image formation can be carried out in the proper image formation condition according to the characteristic of the developer.
Therefore, also when the change of prescription of a developer arises, for example, good image formation can be guaranteed.
[0046]In the invention of claim 4, in the developer receiving vessel of claim 1, the storage parts store of the reutilization frequency of this container is provided in the above-mentioned memory measure, and reutilization frequency can be recorded on it at this storage parts store.
Therefore, when development receiving vessels are collected, the data of this storage parts store is read and the reutilization frequency of this developer receiving vessel can be checked.
Therefore, the trouble of the image forming device body by the reuse which could reuse the developer receiving vessel to the maximum extent, and exceeded the recyclable range can be prevented beforehand, judging whether it is recyclable within the limits.
[0047]In the invention of claim 5, where an image forming device is equipped with a developer receiving vessel, When the coded data which guarantees the quality of the developer which the memory measure provided in the developer receiving vessel has by the data read means means is able to be read, based on the message information corresponding to this coded data memorized by the internal memory, a message is displayed on a displaying means.
Therefore, incorrect wearing of the developer receiving vessel mounting part mistake in 2 color copying machine, etc. can be prevented, for example.
Since the operation of a main part is forbidden by an operation prohibition control means when this coded data is not read, use of the imitation developer receiving vessel in an image forming device can be prevented certainly.
[0048]By the main part side which also gave the data in which the characteristic of the above-mentioned developer is shown in the image forming device of claim 5 by the invention of claim 6 in addition to the coded data which guarantees the quality of a developer to the above-mentioned memory measure, and read this data. It controls by a conditioning means to change an image formation condition based on this data.
Therefore, image formation can be carried out in the proper image formation condition according to the characteristic of the developer.
Therefore, also when the change of prescription of a developer arises, for example, good image formation can be guaranteed.
[0049]In the invention of claim 7, the reutilization frequency data of this storage parts store is updated by the data writing means by the side of a main part in the image forming device of claim 5 in connection with providing the storage parts store of the reutilization frequency of this container in the above-mentioned memory measure, and being equipped with this container.
Therefore, when development receiving vessels are collected, the data of this storage parts store is read and the reutilization frequency of this developer receiving vessel can be checked.
Therefore, the trouble of the image forming device body by the reuse which could reuse the developer receiving vessel to the maximum extent, and exceeded the recyclable range can be prevented beforehand, judging whether it is recyclable within the limits. If it sets up so that it may become, when the developer receiving vessel especially equipped with the timing of updating of the reutilization frequency data of this storage parts store by the image forming device body by the above-mentioned data writing means

becomes empty by supply of a developer, for a certain reason. Renewal of the reutilization frequency mistaken also when a main part was again equipped after taking out the developer receiving vessel in the middle of supply of a developer from a main part can be prevented.
[0050]In the invention of claim 8, in the image forming device of claim 5, to the above-mentioned memory measure. It transposes to the control program which gave the control program for main parts, read this control program by the program reading means by the side of a main part, and read the control program in the internal memory by the side of a main part by the program replacement means.
Therefore, the new function developed after that by the user point also to the installed image forming device can be provided via a developer receiving vessel.

[0051]In the invention of claim 9, the data of the reutilization frequency of this container memorized by the memory measure provided in the collected developer receiving vessel is read by a data read means, and the reutilization frequency of this container judges whether it is predetermined within the limits by a decision means based on the read data.
Therefore, the trouble of the image forming device body by the reuse which could reuse the developer receiving vessel by recyclable within the limits to the maximum extent, and exceeded the recyclable range can be prevented beforehand.

[0052]In the invention of claim 10, it performs about a process cartridge that it is the same as that of the invention of claims 1 thru/or 9.
By therefore, the thing for which information peculiar to process cartridges, such as the quality of a process cartridge, for example, the quality of latent image support, and quality of the developer in the process cartridge containing a developer, is made into coded data. Use of the right process cartridge in an image forming device can be guaranteed, and stabilization of imaging quality can be attained.
An imitation contractor's process cartridge is discovered easily and the use in an image forming device can be prevented. The trouble of the image forming device body by the reuse which could reuse the process cartridge to the maximum extent, and exceeded the recyclable range can be prevented beforehand, judging whether the collected process cartridge is recyclable within the limits. Incorrect wearing of the process cartridge in the copying machine which equips with two or more process cartridges simultaneous or selectively, for example can be prevented. Since the operation of a main part is forbidden by an operation prohibition control means when coded data is not read, use of the imitation process cartridge in an image forming device can be prevented certainly. Also when the change of prescription of a developer arises, for example, good image formation can be guaranteed. The new function developed after that by the user point also to the installed image forming device can be provided via a process cartridge.